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NOTICE OF ALLOWANCE AND FEE(S) DUE

757 7590 12/30/2008

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER

JACOB, MARY C

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 12/30/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,845

02/27/2006

Gary Allan Froyland

9378/186

2461

TITLE OF INVENTION: SYSTEM AND METHOD(S) OF MINE PLANNING, DESIGN AND PROCESSING

(BHP00PUS01000)

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/30/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

757 7590 12/30/2008

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,845	02/27/2006	Gary Allan Froyland	9378/186 (BHP00PUS01000)	2461

TITLE OF INVENTION: SYSTEM AND METHOD(S) OF MINE PLANNING, DESIGN AND PROCESSING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/30/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
JACOB, MARY C	2123	703-002000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,845	02/27/2006	Gary Allan Froyland	9378/186 (BHP00PLIS01000)	2461
757	7590	12/30/2008	EXAMINER	
BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			JACOB, MARY C	
			ART UNIT	PAPER NUMBER
			2123	
DATE MAILED: 12/30/2008				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 285 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 285 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/530,845	FROYLAND ET AL.	
	Examiner	Art Unit	
	MARY C. JACOB	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to response filed 10/15/08.
2. ☒ The allowed claim(s) is/are 69-92.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|---|

DETAILED ACTION

1. The response filed on 10/15/08 has been received and considered. Claims 1-92 have been presented for examination. Claims 1-49, 67 and 68 have been withdrawn. Claims 50-66 have been cancelled.

Election/Restrictions

2. This application is in condition for allowance except for the presence of claims 1-49 and 67-68 directed to inventions non-elected without traverse. Accordingly, claims 1-49, 67 and 68 have been cancelled.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

4.

Authorization for this examiner's amendment was given in a telephone interview with G. Peter Nichols, Reg. No. 34,401 on 12/23/08.

The application has been amended as follows:

Claims 1-49, 67 and 68 have been cancelled.

Claim 69, line 3, the phrase "forming a block model" has been changed to --forming, using a data processing system, a block model—

Claim 69, line 5, the phrase "processing the blocks" has been changed to --processing, using the data processing system, the blocks—

Claim 69, line 8, the phrase "forming a cone" has been changed to --forming, using the data processing system, a cone—

Claim 69, line 10, the phrase "defining clumps" has been changed to --defining, using the data processing system, clumps—

Claim 77, the phrase "the processor also being for:" has been changed to --a memory for storing computer program code, that, upon execution by the processor, perform operations comprising:--

Drawings

5. The objection to the drawings recited in the 6/4/08 Office Action have been withdrawn in view of the amendments to Figure 6, filed 10/15/08.

Specification

6. The objection to the abstract recited in the 6/4/08 Office Action has been withdrawn in view of the amendment to the abstract filed 10/15/08.

Claim Objections

7. The objection to the claims recited in the 6/4/08 Office Action have been withdrawn in view of the amendments to the claims filed 10/15/08.

Claim Rejections - 35 USC § 112

8. The rejection of claims 73, 74, 81, 82 and 85-92 under 35 U.S.C. 112, second paragraph, recited in the 6/4/08 Office Action, have been withdrawn in view of the amendments to the claims filed 10/15/08.

Claim Rejections - 35 USC § 101

9. The rejection of claims 85-92 under 35 U.S.C. 101 recited in the 6/4/08 Office Action, have been withdrawn in view of the amendments to the claims filed 10/15/08.

Claim Rejections - 35 USC § 102

10. The rejection of Claims 69, 70, 72-74, 77, 78, 80-82, 85, 86, 88-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Hochbaum et al have been withdrawn in view of the amendments to the claims and consideration of Applicant's remarks, filed 10/15/08.

Claim Rejections - 35 USC § 103

11. The rejection of Claims 71, 75, 79, 83, 87 and 91 under 35 U.S.C. 103(a) as being unpatentable over Hochbaum et al a in view of Gershon, have been withdrawn in

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view of the amendments to the claims and consideration of Applicant's remarks, filed 10/15/08.

12. The rejection of Claims 76, 84 and 92 under 35 U.S.C. 103(a) as being unpatentable over Hochbaum et al in view of Jain et al have been withdrawn in view of the amendments to the claims and consideration of Applicant's remarks, filed 10/15/08.

Allowable Subject Matter

13. Claims 69-92 are allowed.

14. The following is an examiner's statement of reasons for allowance: While Hochbaum et al ("Performance Analysis and Best Implementations of Old and New Algorithms for the Open-Pit Mining Problem", Department of Industrial Engineering and Operations Research, University of California, Berkley, January 16, 1998) teaches a method of determining extraction of material from a mine having at least one bit comprising forming a block model, precedent arcs, defining a cone and determining an extraction order of blocks, Gershon ("Heuristic Approaches for Mine Planning and Production Scheduling", International Journal of Mining and Geological Engineering", 1987, 5, pages 1-13) teaches a block model, block sequencing and cones generated upward and downward to determine blocks for extraction, and Underwood et al ("A Mathematical Programming Viewpoint for Solving the Ultimate Pit Problem", European Journal of Operational Research, 107, pages 96-107, 1998) teaches a block model, the moving cone method and a cone of dependencies, none of these references taken either alone or in combination with the prior art of record disclose a method for

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determining extraction of material from a mine having at least one pit, specifically including:

(claims 69, 77, 85) "...processing the blocks of the block model based on at least one criteria to define a plurality of clusters each comprising a plurality of blocks..."

"...forming a cone for each cluster..."

"...defining clumps of material from the intersection of the cones, the clumps comprising volumes of material not crossed by precedence arcs, so that material is extractable from the mine in any extraction ordering of the clumps that is feasible according to precedent arcs..."

in combination with the remaining elements and features of the claimed invention, It is for these reasons that the applicant's invention defines over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

15. Applicant's arguments, see pages 20-23, filed 10/15/08, with respect to Claims 69-92 have been fully considered and are persuasive. The rejection of claims 69-92 in view of the prior art have been withdrawn.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary C. Jacob whose telephone number is 571-272-6249. The examiner can normally be reached on Tuesday-Thursday, 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mary C Jacob/

Examiner, Art Unit 2123

/M. C. J./

12/23/08

/Paul L Rodriguez/
Supervisory Patent Examiner,
Art Unit 2123